

PATENT ABSTRACTS OF JAPAN

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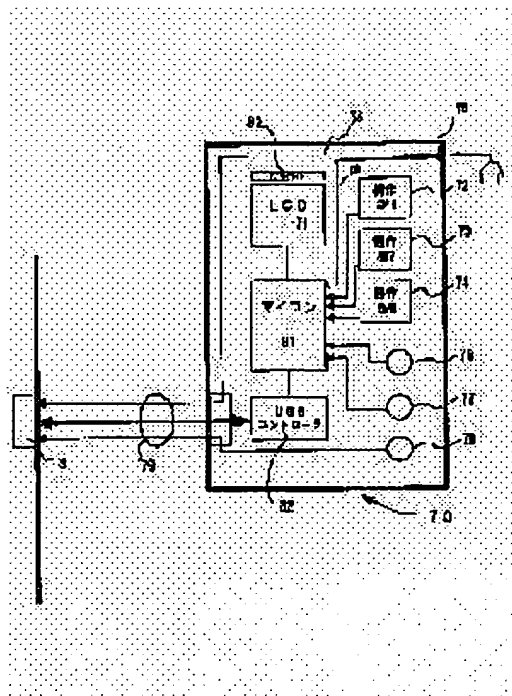
MATSUOKA KENJI

(54) REMOTE CONTROL DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a remote control device enabling a user to operate a computer without viewing the display device of the computer.

SOLUTION: The remote control device 70 is connected through a cable 79 constituted of a two-way serial signal line and a power source state instruction signal line with a portable computer, and provided with an instructing means for giving instruction for the on/off of the power source of the portable computer, a notifying means for notifying the portable computer of the instruction for the on/off of the power source, an operation switch, a microcomputer 81 for reading the state of the operation switch, a transmitting means for transmitting information indicating the state of the operation switch read by the microcomputer to the portable computer, and a display means 71. Also, this device is provided with a voice output terminal 78 with which an attachable/ detachable head phone is connected, and the microcomputer detects that the head phone is not connected with the voice output terminal 78, and the transmitting means transmits the information detected by the microcomputer.



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CLAIMS

[Claim(s)]

[Claim 1] The remote-control equipment carry out having provided the directions means are remote-control equipment connected with a pocket mold computer, and direct ON/OFF of the power supply of a pocket mold computer, the notice means notify ON / off directions of this power supply to a pocket mold computer, an actuation switch, the microcomputer read the condition of said actuation switch, and the transmitting means transmit the information show the condition of the actuation switch read with a microcomputer to a pocket mold computer as the feature.

[Claim 2] Said remote control equipment is remote control equipment according to claim 1 characterized by having a voice output terminal which connects still more nearly removable headphone, and for said microcomputer detecting that headphone are not connected to this voice output terminal, and transmitting this information with said transmitting means.

[Claim 3] Remote control equipment of claim 1 is remote control equipment according to claim 1 characterized by connecting with a pocket mold computer with a bidirectional serial signal line.

[Claim 4] Remote control equipment according to claim 1 is remote control equipment according to claim 1 characterized by having a display means.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] This invention relates a personal computer to the remote control equipment in which remote control is possible.

[0002]

[Description of the Prior Art] Generally, looking at the display screen of a personal computer, using input units, such as keyboard equipment and mouse equipment, the personal computer received directions of the input, selection, etc. from a user, and was used.

[0003] Moreover, in some desktops PC, there were some which are used in response to directions of the input, selection, etc. from a user using the remote control equipment of the infrared radiation possessing a pointing device etc., looking at the display screen of a personal computer.

[0004]

[Problem(s) to be Solved by the Invention] However, after directing a mere input in the former and operating a computer after all, it is only performing input and selection, looking at a display, and remote operation was not completed.

[0005] Moreover, it can operate by remote control, power supply ON of the computer of sleeping can also be carried out with the on-switch of remote control equipment, and the latter can also make input and selection after that using the pointing device of remote control equipment etc. However, even if it was before performing the power supply ON of a computer in order to operate by remote control with infrared radiation, there was a trouble that there was the necessity of making the computer into sleeping instead of an OFF state. Moreover, after the power supply ON of a computer had the problem that it was necessary to operate it in the location has the necessity of performing input and actuation to choose, looking at the display with which a computer is equipped, and surely operates the display of a computer, and the contents of a display are in sight.

[0006] This invention aims at offering the remote control equipment which can operate a computer, without being made in view of the above-mentioned trouble, and seeing the display of a computer.

[0007]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem remote control equipment of this invention A directions means to be remote control equipment connected with a pocket mold computer, and to direct ON/OFF of a power supply of a pocket mold computer, A notice means to notify ON / off directions of this power supply to a pocket mold computer, It had an actuation switch, a microcomputer which reads a condition of said actuation switch, and a transmitting means to transmit information which shows a condition of an actuation switch read with a microcomputer to a pocket mold computer.

[0008] Thereby, a power supply of a pocket mold computer can be turned ON, and a pocket mold computer can be operated now from remote control equipment after that. Furthermore, it has a voice output terminal which connects removable headphone, said microcomputer detects that headphone are not connected to this voice output terminal, and this information was transmitted with said transmitting

means.

[0009] Thereby, since a condition of operation / having not carried out was told to a main part side of a pocket mold computer, a pocket mold computer could perform predetermined correspondence according to this condition. [of a voice output by the side of remote control]

[0010] Furthermore, since a bidirectional serial signal line was used for connection with a pocket mold computer, information from a pocket mold computer could also be received. Furthermore, since it was made to have a display means, it also became possible to operate an actuation switch based on the contents of a display.

[0011]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained with reference to a drawing. Drawing 1 and drawing 2 are the appearance perspective diagrams of the computer system concerning the 1st operation gestalt of this invention, drawing 1 is in the condition which opened the display 3, and drawing 2 is in the condition which closed the display 3.

[0012] Generally the pocket mold computer (PC is called hereafter) 1 is called the notebook mold PC etc., and it is constituted so that a display 3 may open and close to the main part 2 of a device.

[0013] The main part 2 of a device, and in case camera equipment 4 is constituted free [attachment and detachment] and camera equipment 4 is used for it, it is usable by any of a configuration of carrying out indirect continuation of the camera equipment 4 to PC1 through the configuration which carries out direct continuation of the camera equipment 4, or an extended adapter (after-mentioned) they are. In addition, drawing 1 and drawing 2 show the configuration which carried out direct continuation of the camera equipment to PC1, and the camera equipment 4 in the case of direct continuation is arranged among the hinge regions 6 and 7 of the display 3 on the main part 2 of a device as this drawing, and while direct continuation of the camera equipment 4 had been carried out to PC1, it is considering as the configuration which can open and close a display 3. In addition, it has the shutter switch 8 used for the main part 2 of a device in order to incorporate the image from camera equipment 4. In addition, about details, such as a configuration about camera equipment 4, and actuation, it mentions later.

[0014] In the side of the main part 2 of a device, it has the remote control connector 5 for connecting the remote control mentioned later. Drawing 3 shows system block drawing of PC1.

[0015] TAG the information for judging whether the data used as the target of a data access exists in the 13 or primary 11 or secondary CPU cache memory cache memory 12 and the secondary cache memory 13 which build the primary cache memory 12 in the HOST-PCI bridge controller 20 through a local bus 18 is remembered to be RAM14 and DRAM15 which constitutes the main memory of a book PC 1 through a memory slot 17, and escape RAM 16 are connected, respectively.

[0016] Moreover, it connects with PCI bus 21 and the HOST-PCI bridge controller 20 performs communications control between each device on a local bus 18, and each device on PCI bus 21. The video capture controller 23, other computers, etc. and LAN which control incorporation of the display controller 22 which carries out the display control of a liquid crystal display 41, external CRT equipment, etc. which are arranged at a display 3 to PCI bus 21, and the data inputted from camera equipment 4 etc., With the modem controller 24 for performing communications control using circuits, such as a telephone, the HDD controller 25 which controls HDD44, other computers, etc. and an infrared port 45 The non-volatile memory card (Ex. Smart Media) 47 of the high-speed IR controller 26 which carries out high-speed infrared communications control, the PC card controller 27 which controls removable PC card 46, and the mini size which is spreading quickly these days The SmartMedia controller 28 grade to control is connected.

[0017] Moreover, it is standardized by PCI bus 21 and the USB controller 29 which manages the control for carrying out data transmission and reception by USB (Universal Serial Bus) connectable serial, such as various external equipments, is connected to it. The USB controller 29 got down as 2 port ** as input/output port with the exterior, and although the one port was connected with the usual USB connector 48 and used, it combines with other signal lines etc. (after-mentioned), and it connected with the remote control connector 5, and it uses other one ports.

[0018] The PCI-ISA bridge controller 30 is a control circuit for connecting PCI bus 21 and ISA Bus 31.

The sound controller 38 which performs conversion to the voice of the extended controller 34 and voice data which has functions, such as communicating with the power supply microcomputer 35 which performs control of the RTC (real time clock) circuit 32, BIOS-ROM33 which memorizes BIOS, and a keyboard 37, current supply control to a system, charge-and-discharge control of a battery 36, etc., conversion to audio voice data, etc. is connected to the ISA Bus. The extended controller 34 has composition which it also receives that had the function which notifies that to the power supply microcomputer 35 in response to the fact that the electric power switch 52 of PC1 was pushed, and also the power button (after-mentioned) from the remote control connector 5 was pushed. Moreover, the output of the sound controller 38 is alternatively supplied to a loudspeaker 50, the remote control connector 5, and a headset jack 49. About this selection, it mentions later. 51 is a microphone.

[0019] In addition, in the gestalt of this operation, it is the field surrounded by the dotted line focusing on drawing top PCI bus 21, and the system LSI is built. Next, the details configuration by the side of PC1 related to the remote control connector 5 is explained using drawing 4.

[0020] The current supply circuit 61 is a circuit which supplies a power supply to current supply Rhine of USB, it combines with two signal lines 62 of the USB controller 29, one side is connected to the standard USB connector 48, and another side is connected to the remote control connector 5. Moreover, one signal line 63 for notifying power supply ON is connected to the extended controller 34 from the remote control connector 5. The remote control connector 5 is further connected with the sound signal line 64 from the sound controller 38. This sound signal line 64 is equivalent to the right of the usual audio equipment, and a left voice output.

[0021] Thus, the remote control connector 5 is considered as the configuration which summarized the signal which shows a standard USB line and power supply ON, and the usual voice output. In addition, the USB connector 48 and the remote control connector 5 have the gland in PC1, and the signal line to ground.

[0022] Drawing 5 shows and explains the cross section of the remote control connector 5, and the side. The usual USB terminal is connected with an external USB device by a total of four terminals of a power terminal, an earth terminal, and two signal transmission terminals. Moreover, the usual audio terminal is connected by the object for left voice outputs, the object for right voice outputs, and a total of three end-connection children for touch-down. And in the conventional personal computer, the USB terminal and the audio terminal have the connector independently, respectively.

[0023] On the other hand, the remote control connector 5 of the gestalt of this operation forms the power supply signal terminal on the same connector further with these USB terminal and the audio terminal. In the 1 surface of a substrate 530, the power terminal 511 for USB, the signal transmission terminals 512 and 513 for USB, and the earth terminal 521 for audios are arranged. Moreover, the power supply signal terminal 501 is arranged by the location corresponding to the left voice output terminal 522 for audios, this right voice output terminal 523, and the power terminal 511 in the location corresponding to the signal transmission terminals 512 and 513 in the earth terminal 514 for USB at the location corresponding to an earth terminal 521 in the rear face of a substrate 530, respectively. That is, the configuration is taken, as the terminals 511, 514, and 521 for electric supply are arranged on the outside of a connector and a communication link and the data (voice) transmitting terminals 512, 513, 522, and 523 have been arranged inside. Furthermore, as illustrated, the power terminal 511 which is a terminal for electric supply, the earth terminal 521, and the earth terminal 514 consist of patterns longer than other terminals.

[0024] Next, the sound signal line 64 of the sound controller 38 is connected to the headset jack 49 and loudspeaker 50 other than connection with the above-mentioned remote control connector 5. There is a signal line 65 which detects the connection existence of headphone in a headset jack 49. In the usual audio equipment, when headphone are connected, the loudspeaker has the function which turns on/switches [off] the sound signal line to a loudspeaker 50 with the signal line 65 which detects the connection existence of the above-mentioned headphone so that a voice output may not be carried out.

[0025] In PC1 of the gestalt of this operation, the connection existence in the removable headset jack prepared in the remote control unit connected through the remote control connector 5 is detected besides

the connection existence of a headset jack 49, and turning on and off the sound signal line 64 to a loudspeaker 50 is called for. In order to realize this, PC1 has the register 66 which writes in the initial entry of the headset jack received from a remote control unit side through USB. If H output is received from any of a signal line 65 or a register 66, it had OR circuit 67 of which H output is done, and the configuration which turns on/switches [off] the sound signal line to a loudspeaker 50 is taken with the output of this OR circuit 67. The connection existence in the removable headset jack prepared in the remote control unit connected through the remote control connector 5 besides the connection existence of a headset jack 49 by this can also be detected, and the sound signal line to a loudspeaker 50 can be turned on / turned off now. In addition, about the write-in actuation to this register 66, it mentions later. [0026] Next, the appearance is used for the remote control unit of the gestalt of this operation, drawing 7 is used for the block configuration by drawing 6, and it shows and explains. A remote control unit 70 is equipped with the actuation switches 72, 73, and 74 of 71 or 3 LCD which can display 10x3 characters, a snap switch 75, an electric power switch 76, the hold switch 77, and a headset jack 78. Moreover, the remote control unit 70 was equipped with the cable 79, and is equipped with the remote control connector 5 of PC1, and the removable connector (not shown) at the tip of a cable 79. Moreover, the back of LCD71 is equipped with the back light 80 for LCD, and after switch actuation [which], it is constituted so that for several seconds may be turned on.

[0027] The remote control unit 70 has the USB controller 82 which communicates with a microcomputer (a microcomputer is called hereafter) 81 and the USB controller 29 of PC1. A microcomputer 81 manages control of this whole remote control unit 70, mainly detects the condition of the function displayed on LCD71 based on carrier beam data from PC1, the actuation switches 72, 73, and 74, and a snap switch 75, generates a command, and has the function notified to PC1 through the USB controller 82 and the cable 79. In addition, the actuation switches 72, 73, and 74 are switches with three conditions of "the /left / right" to push, and a snap switch 75 is the usual button switch.

[0028] Moreover, the hold switch 77 is a switch which cancels other switches, and if this switch is turned on, when a microcomputer 81 disregards the change of state of each switch except an electric power switch 76, it will be realized. Moreover, although not illustrated here, a switching circuit is prepared on the signal line of an electric power switch 76, and if it constitutes so that a switching circuit may go out by ON of the hold switch 77, an electric power switch 76 can also be cancelled, for example.

[0029] The sound signal line 83 inputted through a cable 79 is transmitted to the inside of a remote control unit 70, and is connected to a headset jack 78. Moreover, an electric power switch 76 supplies independently the signal which shows power supply ON / OFF to PC1 through a cable 79 by being turned on in a microcomputer 81.

[0030] The signal line 84 equivalent to the signal line showing the existence of connection of the headphone formed in the above mentioned PC1 side is connected to the headset jack 78, with this signal line 84, a microcomputer 81 detects the existence of connection of a headset jack 78, a microcomputer 81 generates a predetermined command based on that detection result, and the USB controller 82 notifies that to PC1 through a cable 79. The notice received by the USB controller 29 is interpreted by CPU11, and PC1 writes it in the above mentioned register 66 with IO instruction. Thereby, the connection existence of the headphone of the headset jack 78 of a remote control unit 70 can be distinguished.

[0031] Since it is a serial signal line and PC1 and a remote control unit 70 are bidirectionally connected using a certain USB in which signal transduction is possible, and since PC1 which connected the remote control unit 70 constituted as mentioned above formed the electric power switch 76 which turns on / turns off PC1 in the remote control unit 70, the method of the following use of it becomes possible, for example.

[0032] Now, PC1 is made into the condition that have closed the lid of a display 3 by the power supply OFF state, and the remote control unit 70 is connected. the purport by which the power supply was pushed on the extended controller 34 of PC1 when the electric power switch 76 of a remote control unit 70 was pushed in this condition -- it is notified.

[0033] The extended controller 34 notifies this to the power supply microcomputer 35, and thereby, PC1 starts actuation and it performs loading of initialization and OS etc. Moreover, at this time, the high order program for remote control and remote control driver software are also loaded, and the table for interpreting the command transmitted from a remote control unit 70 is prepared. This table matches the command from the microcomputer 81 according to action of each switch of remote control, and the instruction to a high order program.

[0034] Moreover, remote control driver software receives the data for displaying on LCD71 of a remote control unit 70 from a high order program, and supplies it to the USB controller 29. The remote control connector 5 side is used for the USB controller 29, and it carries out data transmission to a remote control unit 70. A remote control unit 70 displays the transmitted data on LCD71, and waits for the actuation from a user. From a user, if a certain switch actuation is performed, a microcomputer 81 will interpret the actuation switch, will generate a command, and will transmit it to PC1 using the USB controller 82. The aforementioned table is used, and the transmitted command is changed into the instruction to a high order program, and is notified.

[0035] the display 3 of PC1 closes in the above example -- **** (it is non-display) -- actuation is performed as PC1. Thus, in PC1 which has the remote control unit 70 of the gestalt of this operation which operates, it is suitable for the operation of directing a certain audio file of the storage (HDD44 and SmartMedia 47 grade) which is in PC1, for example using the manual operation button of a remote control unit 70, and hearing this by headphone through the headset jack 78 of a remote control unit 70 etc.

[0036] it said that it becomes possible for directions to be also possible from a remote control unit 70 to PC1, and to also display this in response to supply of an indicative data from PC1 since it is a serial signal line and PC1 and a remote control unit 70 are bidirectionally connected using a certain USB in which signal transduction is possible, and PC1 which connected the remote control unit 70 constituted as mentioned above chooses processing based on the displayed data etc. -- actuation can perform now interactively.

[0037] Next, drawing 8 shows the transverse plane and the side about the camera equipment 4 connected to PC1, respectively. When the tongue which 101 adjusts a focus with a lens and adjusts 102 manually, and 103 are demounted from PC1, they are a shutter switch arranged so that it may be usable. Thus, since the shutter switch 103 was formed in the camera equipment 4 side, when the cable extension mentioned later is used, shutter operation can be carried out with a hand. Furthermore, when the shutter switch 103 is carrying out direct continuation of the camera equipment 4 to PC1, it is arranged in the location which cannot be operated, and it can prevent an operation mistake.

[0038] 104 is a connector connected through a PC, direct, or extension adapter. Moreover, the rotation section 105 has composition pivotable about 180 degrees to the cylindrical shaft. When direct continuation of the camera equipment 4 is carried out to PC1, the upper surface of the main part 2 of a device and the direction of a center (center of an image) of a lens 101 are pivotable in the same direction as a display 3 from about 30 degrees to about 210 degrees.

[0039] The functional block diagram at the time of drawing 9 carrying out direct continuation of camera equipment 4 and PC1 and drawing 10 are drawings when connecting camera equipment 4 and PC1 through an extended adapter. PC1 has a connector 121. On the other hand, camera equipment 4 has electrically the connector 104 which can connect in this connector 121. Moreover, an extended adapter has a connector 121, the connector 123 connected and a connector 104, and the connector 124 connected, and has the configuration to which the signal line except the direction switch 113 which mentions later is connected electrically.

[0040] The CMOS sensor 111 incorporates the image data inputted through the lens 101 as pixel information. PC1 is supplied after processing this by the digital signal processor 112.

[0041] By the way, when carrying out direct continuation of the camera equipment 4 to PC1, the upper and lower sides reverse the image data incorporated when the rotation section 105 exceeds above. For this reason, the direction switch 113 is formed. As for the direction switch 113, it is desirable to be switched when the rotation section 105 exceeds a predetermined angle, and to be switched with the

gestalt of this operation by per [60 degree (the 2 receive 90 main part of device = right above direction)]. In the case of direct continuation, the condition of this direction switch 113 is supplied to the video capture controller 23. However, in the case of the indirect continuation in an extended adapter, it does not connect, and the condition of the direction switch 113 is not supplied to the video capture controller 23. This will improve the defect of becoming a defect on the contrary, if the direction of up-and-down changes, since a user has camera equipment 4 by hand and is usually operated by flexibility, when an extended adapter is used.

[0042] When either the shutter switch 103 of camera equipment 4 and the shutter switch 8 of PC1 are pushed, the notice of the purport pushed on the video capture controller 23 through OR circuit 118 is given.

[0043] Moreover, in camera equipment 4, it has a gland 114, the video capture controller 23 detects whether the seal of approval of the voltage is carried out from the pull-up resistor 115 in PC1, and existence of connection is checked. Since the gland 114 has been arranged in camera equipment 4, even if it is any of direct continuation and indirect continuation, it can distinguish correctly whether there is any paddle to which camera equipment is connected. Detecting the existence of this connection, the video capture controller 23 switches on / turns off a switch 116, and performs current supply to camera equipment 4. When camera equipment 4 is connected to PC1, as for image data, the image is always supplied to the video capture controller 23. It is dependent on a setup for the video capture controller 23 from the application program of PC1 main part whether this is incorporated on PC1. For example, it defines as a setup according [whether whenever the shutter switches 103 and 8 are pushed, the image at that time is incorporated to PC1 or it continue incorporating until a shutter is pushed next, after pushing a shutter, and] to an application program.

[0044] As mentioned above, since it had the extended adapter connectable with the connector 104 with which the connector 121 and the camera equipment 4 with which PC1 is equipped are equipped, camera equipment 4 became it is also possible to use it, carrying out direct continuation to PC, and possible [connecting through an extended adapter and using it also as a hand held camera].

[0045]

[Effect of the Invention] As explained above, it becomes possible to turn ON the power supply of a pocket mold computer, and to operate a pocket mold computer from remote control equipment after that by this invention. Moreover, since the condition of operation / not carrying out out can be told to the main part side of a pocket mold computer, it enables a pocket mold computer to perform predetermined correspondence according to this condition. [of the voice output by the side of remote control] Furthermore, it also becomes possible to also receive the information from a pocket mold computer, and to become possible and to operate an actuation switch based on the contents of a display.

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PRIOR ART

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[0015] TAG the information for judging whether the data used as the target of a data access exists in the 13 or primary 11 or secondary CPU cache memory cache memory 12 and the secondary cache memory 13 which build the primary cache memory 12 in the HOST-PCI bridge controller 20 through a local bus 18 is remembered to be RAM14 and DRAM15 which constitutes the main memory of a book PC 1 through a memory slot 17, and escape RAM 16 are connected, respectively.

[0016] Moreover, it connects with PCI bus 21 and the HOST-PCI bridge controller 20 performs communications control between each device on a local bus 18, and each device on PCI bus 21. The video capture controller 23, other computers, etc. and LAN which control incorporation of the display controller 22 which carries out the display control of a liquid crystal display 41, external CRT equipment, etc. which are arranged at a display 3 to PCI bus 21, and the data inputted from camera equipment 4 etc., With the modem controller 24 for performing communications control using circuits, such as a telephone, the HDD controller 25 which controls HDD44, other computers, etc. and an infrared port 45 The non-volatile memory card (Ex.Smart Media) 47 of the high-speed IR controller 26 which carries out high-speed infrared communications control, the PC card controller 27 which controls removable PC card 46, and the mini size which is spreading quickly these days The SmartMedia controller 28 grade to control is connected.

[0017] Moreover, it is standardized by PCI bus 21 and the USB controller 29 which manages the control for carrying out data transmission and reception by USB (Universal Serial Bus) connectable serial, such as various external equipments, is connected to it. The USB controller 29 got down as 2 port ** as input/output port with the exterior, and although the one port was connected with the usual USB connector 48 and used, it combines with other signal lines etc. (after-mentioned), and it connected with the remote control connector 5, and it uses other one ports.

[0018] The PCI-ISA bridge controller 30 is a control circuit for connecting PCI bus 21 and ISA Bus 31. The sound controller 38 which performs conversion to the voice of the extended controller 34 and voice data which has functions, such as communicating with the power supply microcomputer 35 which performs control of the RTC (real time clock) circuit 32, BIOS-ROM33 which memorizes BIOS, and a keyboard 37, current supply control to a system, charge-and-discharge control of a battery 36, etc., conversion to audio voice data, etc. is connected to the ISA Bus. The extended controller 34 has composition which it also receives that had the function which notifies that to the power supply microcomputer 35 in response to the fact that the electric power switch 52 of PC1 was pushed, and also the power button (after-mentioned) from the remote control connector 5 was pushed. Moreover, the output of the sound controller 38 is alternatively supplied to a loudspeaker 50, the remote control connector 5, and a headset jack 49. About this selection, it mentions later. 51 is a microphone.

[0019] In addition, in the gestalt of this operation, it is the field surrounded by the dotted line focusing on drawing top PCI bus 21, and the system LSI is built. Next, the details configuration by the side of PC1 related to the remote control connector 5 is explained using drawing 4.

[0020] The current supply circuit 61 is a circuit which supplies a power supply to current supply Rhine of USB, it combines with two signal lines 62 of the USB controller 29, one side is connected to the standard USB connector 48, and another side is connected to the remote control connector 5. Moreover, one signal line 63 for notifying power supply ON is connected to the extended controller 34 from the remote control connector 5. The remote control connector 5 is further connected with the sound signal line 64 from the sound controller 38. This sound signal line 64 is equivalent to the right of the usual audio equipment, and a left voice output.

[0021] Thus, the remote control connector 5 is considered as the configuration which summarized the signal which shows a standard USB line and power supply ON, and the usual voice output. In addition, the USB connector 48 and the remote control connector 5 have the gland in PC1, and the signal line to ground.

[0022] Drawing 5 shows and explains the cross section of the remote control connector 5, and the side. The usual USB terminal is connected with an external USB device by a total of four terminals of a power terminal, an earth terminal, and two signal transmission terminals. Moreover, the usual audio

terminal is connected by the object for left voice outputs, the object for right voice outputs, and a total of three end-connection children for touch-down. And in the conventional personal computer, the USB terminal and the audio terminal have the connector independently, respectively.

[0023] On the other hand, the remote control connector 5 of the gestalt of this operation forms the power supply signal terminal on the same connector further with these USB terminal and the audio terminal. In the 1 surface of a substrate 530, the power terminal 511 for USB, the signal transmission terminals 512 and 513 for USB, and the earth terminal 521 for audios are arranged. Moreover, the power supply signal terminal 501 is arranged by the location corresponding to the left voice output terminal 522 for audios, this right voice output terminal 523, and the power terminal 511 in the location corresponding to the signal transmission terminals 512 and 513 in the earth terminal 514 for USB at the location corresponding to an earth terminal 521 in the rear face of a substrate 530, respectively. That is, the configuration is taken, as the terminals 511, 514, and 521 for electric supply are arranged on the outside of a connector and a communication link and the data (voice) transmitting terminals 512, 513, 522, and 523 have been arranged inside. Furthermore, as illustrated, the power terminal 511 which is a terminal for electric supply, the earth terminal 521, and the earth terminal 514 consist of patterns longer than other terminals.

[0024] Next, the sound signal line 64 of the sound controller 38 is connected to the headset jack 49 and loudspeaker 50 other than connection with the above-mentioned remote control connector 5. There is a signal line 65 which detects the connection existence of headphone in a headset jack 49. In the usual audio equipment, when headphone are connected, the loudspeaker has the function which turns on/switches [off] the sound signal line to a loudspeaker 50 with the signal line 65 which detects the connection existence of the above-mentioned headphone so that a voice output may not be carried out.

[0025] In PC1 of the gestalt of this operation, the connection existence in the removable headset jack prepared in the remote control unit connected through the remote control connector 5 is detected besides the connection existence of a headset jack 49, and turning on and off the sound signal line 64 to a loudspeaker 50 is called for. In order to realize this, PC1 has the register 66 which writes in the initial entry of the headset jack received from a remote control unit side through USB. If H output is received from any of a signal line 65 or a register 66, it had OR circuit 67 of which H output is done, and the configuration which turns on/switches [off] the sound signal line to a loudspeaker 50 is taken with the output of this OR circuit 67. The connection existence in the removable headset jack prepared in the remote control unit connected through the remote control connector 5 besides the connection existence of a headset jack 49 by this can also be detected, and the sound signal line to a loudspeaker 50 can be turned on / turned off now. In addition, about the write-in actuation to this register 66, it mentions later.

[0026] Next, the appearance is used for the remote control unit of the gestalt of this operation, drawing 7 is used for the block configuration by drawing 6, and it shows and explains. A remote control unit 70 is equipped with the actuation switches 72, 73, and 74 of 71 or 3 LCD which can display 10x3 characters, a snap switch 75, an electric power switch 76, the hold switch 77, and a headset jack 78. Moreover, the remote control unit 70 was equipped with the cable 79, and is equipped with the remote control connector 5 of PC1, and the removable connector (not shown) at the tip of a cable 79. Moreover, the back of LCD71 is equipped with the back light 80 for LCD, and after switch actuation [which], it is constituted so that for several seconds may be turned on.

[0027] The remote control unit 70 has the USB controller 82 which communicates with a microcomputer (a microcomputer is called hereafter) 81 and the USB controller 29 of PC1. A microcomputer 81 manages control of this whole remote control unit 70, mainly detects the condition of the function displayed on LCD71 based on carrier beam data from PC1, the actuation switches 72, 73, and 74, and a snap switch 75, generates a command, and has the function notified to PC1 through the USB controller 82 and the cable 79. In addition, the actuation switches 72, 73, and 74 are switches with three conditions of "the /left / right" to push, and a snap switch 75 is the usual button switch.

[0028] Moreover, the hold switch 77 is a switch which cancels other switches, and if this switch is turned on, when a microcomputer 81 disregards the change of state of each switch except an electric power switch 76, it will be realized. Moreover, although not illustrated here, a switching circuit is

prepared on the signal line of an electric power switch 76, and if it constitutes so that a switching circuit may go out by ON of the hold switch 77, an electric power switch 76 can also be cancelled, for example.

[0029] The sound signal line 83 inputted through a cable 79 is transmitted to the inside of a remote control unit 70, and is connected to a headset jack 78. Moreover, an electric power switch 76 supplies independently the signal which shows power supply ON / OFF to PC1 through a cable 79 by being turned on in a microcomputer 81.

[0030] The signal line 84 equivalent to the signal line showing the existence of connection of the headphone formed in the above mentioned PC1 side is connected to the headset jack 78, with this signal line 84, a microcomputer 81 detects the existence of connection of a headset jack 78, a microcomputer 81 generates a predetermined command based on that detection result, and the USB controller 82 notifies that to PC1 through a cable 79. The notice received by the USB controller 29 is interpreted by CPU11, and PC1 writes it in the above mentioned register 66 with IO instruction. Thereby, the connection existence of the headphone of the headset jack 78 of a remote control unit 70 can be distinguished.

[0031] Since it is a serial signal line and PC1 and a remote control unit 70 are bidirectionally connected using a certain USB in which signal transduction is possible, and since PC1 which connected the remote control unit 70 constituted as mentioned above formed the electric power switch 76 which turns on / turns off PC1 in the remote control unit 70, the method of the following use of it becomes possible, for example.

[0032] Now, PC1 is made into the condition that have closed the lid of a display 3 by the power supply OFF state, and the remote control unit 70 is connected. the purport by which the power supply was pushed on the extended controller 34 of PC1 when the electric power switch 76 of a remote control unit 70 was pushed in this condition -- it is notified.

[0033] The extended controller 34 notifies this to the power supply microcomputer 35, and thereby, PC1 starts actuation and it performs loading of initialization and OS etc. Moreover, at this time, the high order program for remote control and remote control driver software are also loaded, and the table for interpreting the command transmitted from a remote control unit 70 is prepared. This table matches the command from the microcomputer 81 according to action of each switch of remote control, and the instruction to a high order program.

[0034] Moreover, remote control driver software receives the data for displaying on LCD71 of a remote control unit 70 from a high order program, and supplies it to the USB controller 29. The remote control connector 5 side is used for the USB controller 29, and it carries out data transmission to a remote control unit 70. A remote control unit 70 displays the transmitted data on LCD71, and waits for the actuation from a user. From a user, if a certain switch actuation is performed, a microcomputer 81 will interpret the actuation switch, will generate a command, and will transmit it to PC1 using the USB controller 82. The aforementioned table is used, and the transmitted command is changed into the instruction to a high order program, and is notified.

[0035] the display 3 of PC1 closes in the above example -- **** (it is non-display) -- actuation is performed as PC1. Thus, in PC1 which has the remote control unit 70 of the gestalt of this operation which operates, it is suitable for the operation of directing a certain audio file of the storage (HDD44 and SmartMedia 47 grade) which is in PC1, for example using the manual operation button of a remote control unit 70, and hearing this by headphone through the headset jack 78 of a remote control unit 70 etc.

[0036] it said that it becomes possible for directions to be also possible from a remote control unit 70 to PC1, and to also display this in response to supply of an indicative data from PC1 since it is a serial signal line and PC1 and a remote control unit 70 are bidirectionally connected using a certain USB in which signal transduction is possible, and PC 1 which connected the remote control unit 70 constituted as mentioned above chooses processing based on the displayed data etc. -- actuation can perform now interactively.

[0037] Next, drawing 8 shows the transverse plane and the side about the camera equipment 4 connected

to PC1, respectively. When the tongue which 101 adjusts a focus with a lens and adjusts 102 manually, and 103 are demounted from PC1, they are a shutter switch arranged so that it may be usable. Thus, since the shutter switch 103 was formed in the camera equipment 4 side, when the cable extension mentioned later is used, shutter operation can be carried out with a hand. Furthermore, when the shutter switch 103 is carrying out direct continuation of the camera equipment 4 to PC1, it is arranged in the location which cannot be operated, and it can prevent an operation mistake.

[0038] 104 is a connector connected through a PC, direct, or extension adapter. Moreover, the rotation section 105 has composition pivotable about 180 degrees to the cylindrical shaft. When direct continuation of the camera equipment 4 is carried out to PC1, the upper surface of the main part 2 of a device and the direction of a center (center of an image) of a lens 101 are pivotable in the same direction as a display 3 from about 30 degrees to about 210 degrees.

[0039] The functional block diagram at the time of drawing 9 carrying out direct continuation of camera equipment 4 and PC1 and drawing 10 are drawings when connecting camera equipment 4 and PC1 through an extended adapter. PC1 has a connector 121. On the other hand, camera equipment 4 has electrically the connector 104 which can connect in this connector 121. Moreover, an extended adapter has a connector 121, the connector 123 connected and a connector 104, and the connector 124 connected, and has the configuration to which the signal line except the direction switch 113 which mentions later is connected electrically.

[0040] The CMOS sensor 111 incorporates the image data inputted through the lens 101 as pixel information. PC1 is supplied after processing this by the digital signal processor 112.

[0041] By the way, when carrying out direct continuation of the camera equipment 4 to PC1, the upper and lower sides reverse the image data incorporated when the rotation section 105 exceeds above. For this reason, the direction switch 113 is formed. As for the direction switch 113, it is desirable to be switched when the rotation section 105 exceeds a predetermined angle, and to be switched with the gestalt of this operation by per [60 degree (the 2 receive 90 main part of device = right above direction)]. In the case of direct continuation, the condition of this direction switch 113 is supplied to the video capture controller 23. However, in the case of the indirect continuation in an extended adapter, it does not connect, and the condition of the direction switch 113 is not supplied to the video capture controller 23. This will improve the defect of becoming a defect on the contrary, if the direction of up-and-down changes, since a user has camera equipment 4 by hand and is usually operated by flexibility, when an extended adapter is used.

[0042] When either the shutter switch 103 of camera equipment 4 and the shutter switch 8 of PC1 are pushed, the notice of the purport pushed on the video capture controller 23 through OR circuit 118 is given.

[0043] Moreover, in camera equipment 4, it has a gland 114, the video capture controller 23 detects whether the seal of approval of the voltage is carried out from the pull-up resistor 115 in PC1, and existence of connection is checked. Since the gland 114 has been arranged in camera equipment 4, even if it is any of direct continuation and indirect continuation, it can distinguish correctly whether there is any paddle to which camera equipment is connected. Detecting the existence of this connection, the video capture controller 23 switches on / turns off a switch 116, and performs current supply to camera equipment 4. When camera equipment 4 is connected to PC1, as for image data, the image is always supplied to the video capture controller 23. It is dependent on a setup for the video capture controller 23 from the application program of PC1 main part whether this is incorporated on PC1. For example, it defines as a setup according [whether whenever the shutter switches 103 and 8 are pushed, the image at that time is incorporated to PC1 or it continue incorporating until a shutter is pushed next, after pushing a shutter, and] to an application program.

[0044] As mentioned above, since it had the extended adapter connectable with the connector 104 with which the connector 121 and the camera equipment 4 with which PC1 is equipped are equipped, camera equipment 4 became it is also possible to use it, carrying out direct continuation to PC, and possible [connecting through an extended adapter and using it also as a hand held camera].

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The appearance perspective diagram of the computer system concerning the 1st operation gestalt of this invention.

[Drawing 2] The appearance perspective diagram of the computer system concerning the 1st operation gestalt of this invention.

[Drawing 3] System block drawing of the computer system concerning the 1st operation gestalt of this invention.

[Drawing 4] The partial block diagram of PC1 about the remote control connector 5.

[Drawing 5] Drawing showing the configuration of the remote control connector 5.

[Drawing 6] The external view of a remote control unit 70.

[Drawing 7] The block diagram of a remote control unit 70.

[Drawing 8] The transverse plane of camera equipment 4, a side elevation.

[Drawing 9] The functional block diagram at the time of carrying out direct continuation of camera equipment 4 and PC1.

[Drawing 10] The functional block diagram when connecting camera equipment 4 and PC1 through an extended adapter.

[Description of Notations]

1 Pocket Mold Computer 2 Main Part of Device 3 Display
 4 Camera Equipment 8 Shutter Switch 5 Remote Control Connector
 11 CPU 11 Primary Cache Memory
 13 Secondary Cache Memory 14 TAG RAM
 15 DRAM 15 16 Escape RAM
 20 HOST-PCI Bridge Controller 21 PCI Bus
 22 Display Controller 23 Video Capture Controller
 24 Modem Controller 25 HDD Controller
 26 High-speed IR Controller 27 PC-Card Controller
 28 SmartMedia Controller 29 USB Controller
 30 PCI-ISA Bridge Controller 33 BIOS-ROM
 34 Extended Controller 35 Power Supply Microcomputer
 38 Sound Controller 48 USB Connector
 70 Remote Control Unit 71 LCD 72, 73, 74 Actuation Switch
 76 Electric Power Switch 78 Headset Jack 81 Microcomputer
 101 Lens 103 Shutter Switch
 104, 121, 123, 124 Connector 111 CMOS
 112 Digital Signal Processor
 113 Direction Switch

[Translation done.]

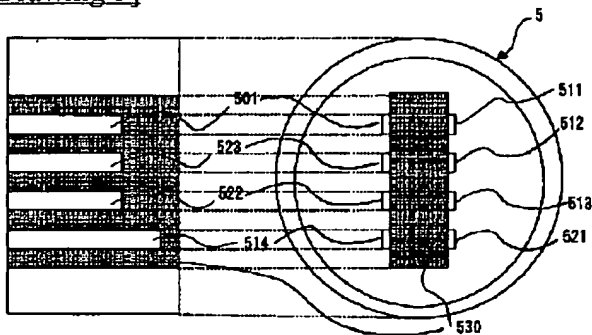
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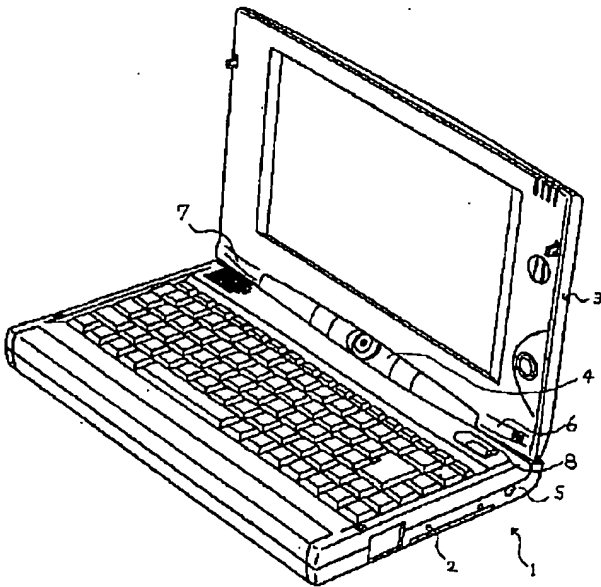
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DRAWINGS

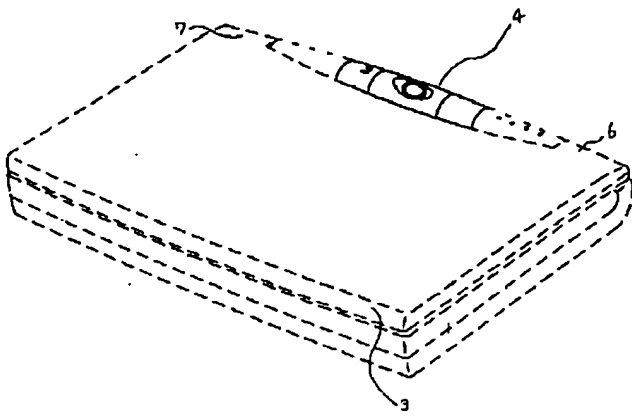
[Drawing 5]



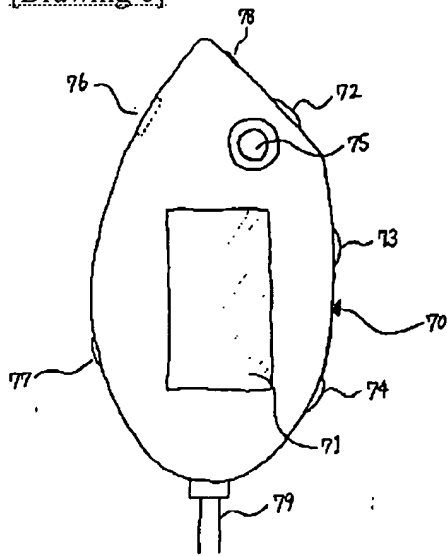
[Drawing 1]



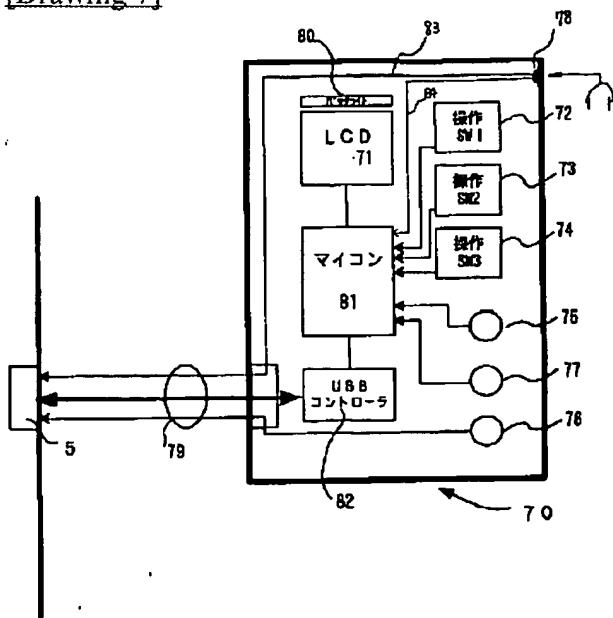
[Drawing 2]



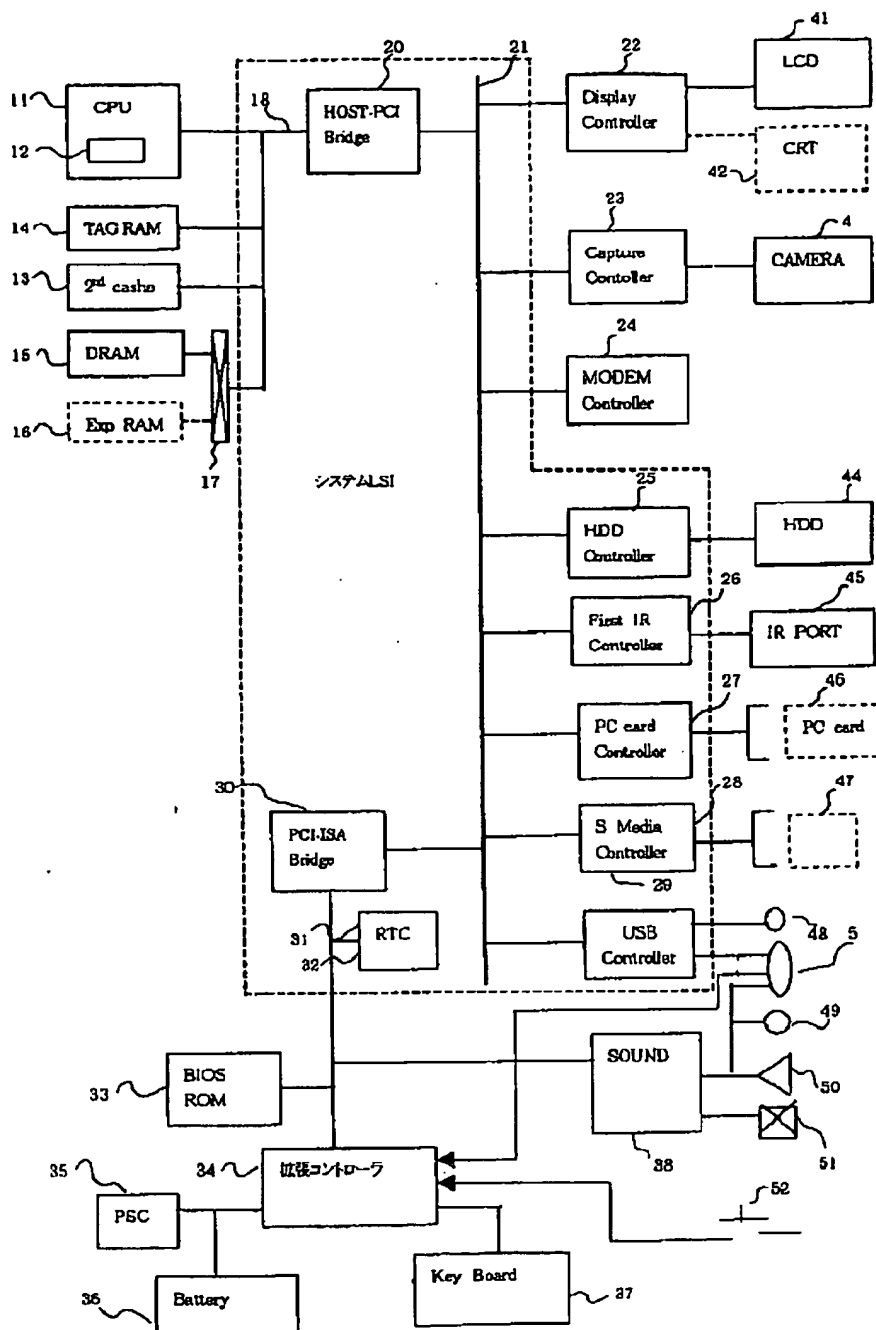
[Drawing 6]



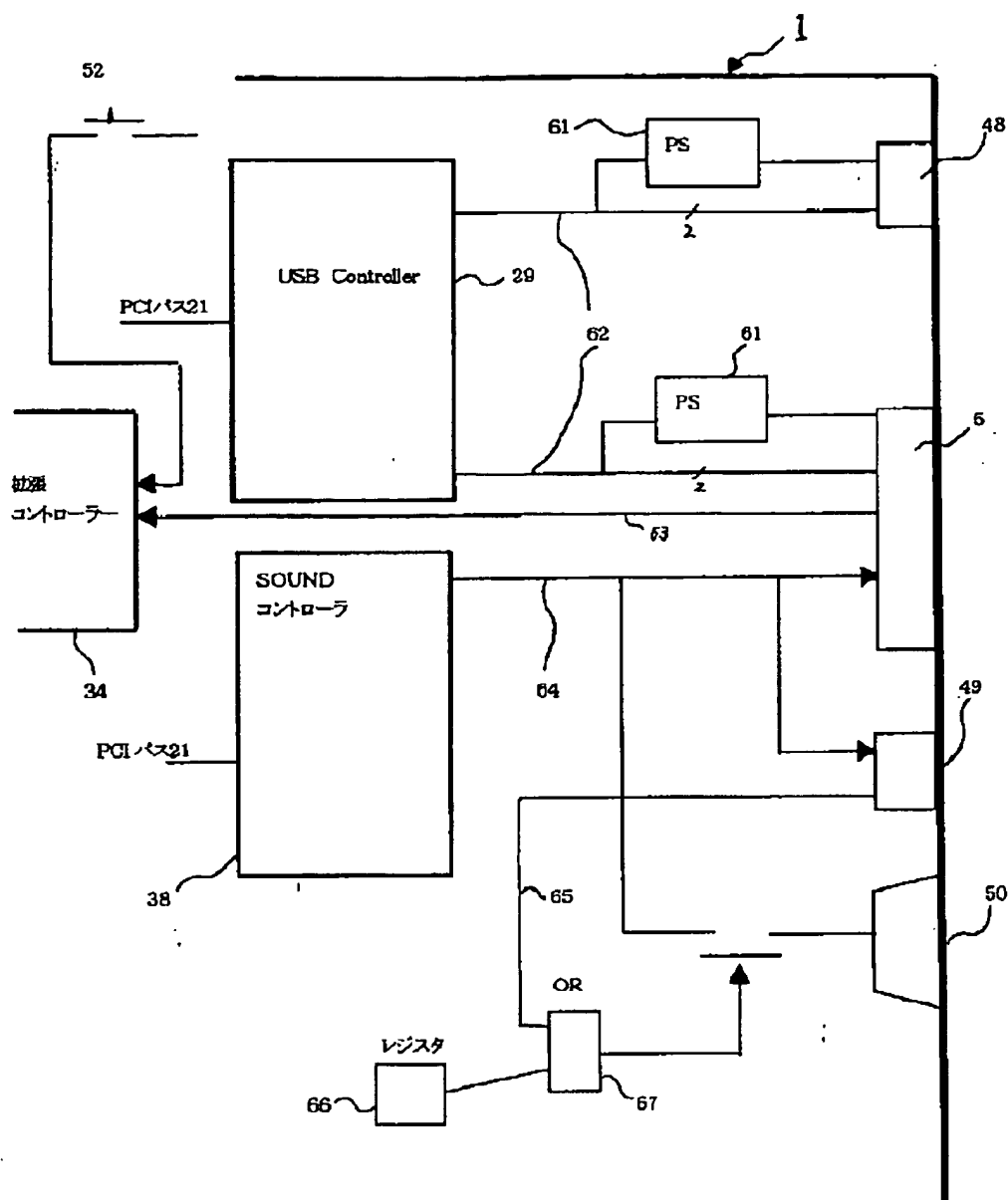
[Drawing 7]



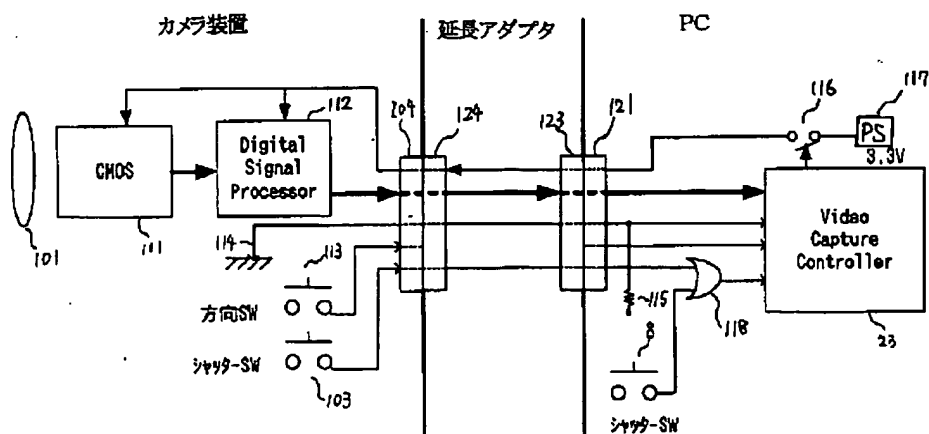
[Drawing 3]



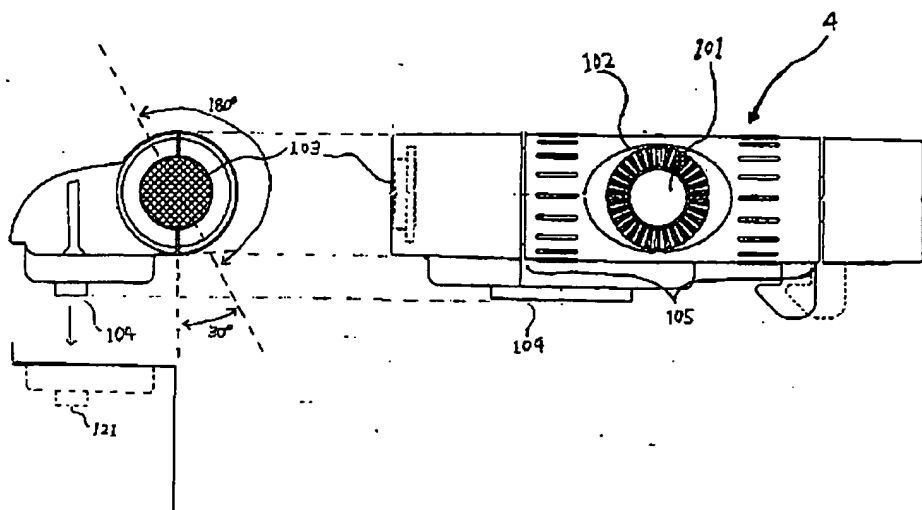
[Drawing 4]



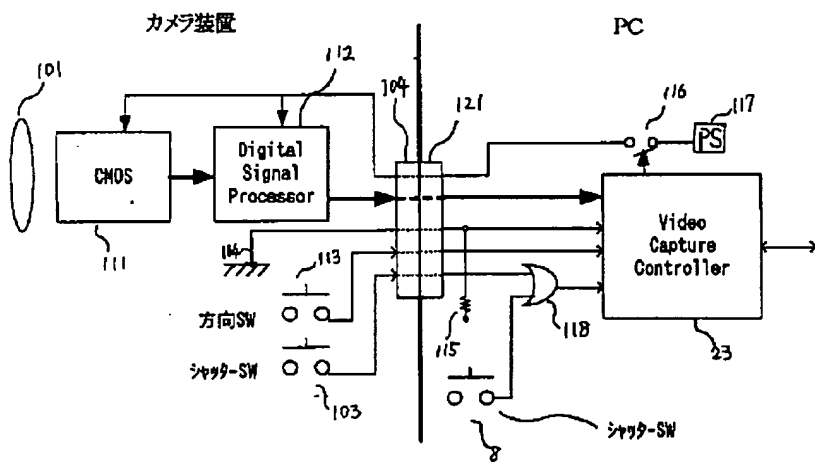
[Drawing 10]



[Drawing 8]



[Drawing 9]



[Translation done.]

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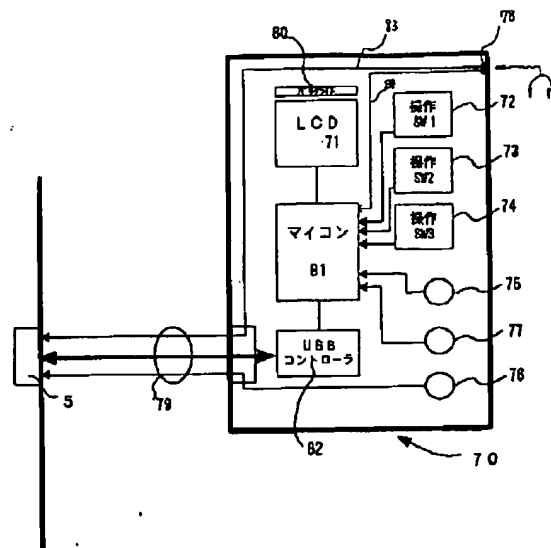
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(54) 【発明の名称】 リモートコントロール装置

(57) 【要約】 (修正有)

【課題】 コンピュータの表示装置を見ることなく、コンピュータの操作が可能なりモートコントロール装置を提供する。

【解決手段】 双方向シリアル信号線と電源状態指示信号線とからなるケーブル79で携帯型コンピュータ1と、リモートコントロール装置70とを接続するリモートコントロール装置であって、携帯型コンピュータ1の電源のオン/オフを指示する指示手段と、この電源のオン/オフの指示を携帯型コンピュータへ通知する通知手段と、操作スイッチと、前記操作スイッチの状態を読取るマイクロコンピュータと、マイクロコンピュータで読取られた操作スイッチの状態を示す情報を携帯型コンピュータ1へ送信する送信手段と表示手段を備えた。また、更に着脱可能なヘッドホンを持続する音声出力端子78を有し、この音声出力端子78にヘッドホンが持続されていないことを前記マイクロコンピュータが検出し、この情報を前記送信手段で送信するようにした。



【特許請求の範囲】

【請求項1】 携帯型コンピュータと接続されるリモートコントロール装置であって、携帯型コンピュータの電源のオン／オフを指示する指示手段と、この電源のオン／オフの指示を携帯型コンピュータへ通知する通知手段と、操作スイッチと、前記操作スイッチの状態を読取るマイクロコンピュータと、マイクロコンピュータで読取られた操作スイッチの状態を示す情報を携帯型コンピュータへ送信する送信手段とを具備したことを特徴とするリモートコントロール装置。

【請求項2】 前記リモートコントロール装置は、更に着脱可能なヘッドホンを接続する音声出力端子を有し、この音声出力端子にヘッドホンが接続されていないことを前記マイクロコンピュータが検出し、この情報を前記送信手段で送信することを特徴とする請求項1記載のリモートコントロール装置。

【請求項3】 請求項1のリモートコントロール装置は、双方向シリアル信号線にて携帯型コンピュータと接続されることを特徴とする請求項1記載のリモートコントロール装置。

【請求項4】 請求項1に記載のリモートコントロール装置は、表示手段を有することを特徴とする請求項1記載のリモートコントロール装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、パーソナルコンピュータを遠隔制御可能なリモートコントロール装置に関する。

【0002】

【従来の技術】一般に、パーソナルコンピュータは、パーソナルコンピュータの表示画面を見ながら、キーボード装置やマウス装置などの入力装置を使って、ユーザからの入力・選択等の指示を受け、利用されていた。

【0003】また、一部のデスクトップPCなどでは、パーソナルコンピュータの表示画面を見ながら、ポインティング・デバイス等を具備した赤外線のリモートコントロール装置を使って、ユーザからの入力・選択等の指示を受け、利用されるものもあった。

【0004】

【発明が解決しようとする課題】しかしながら、前者においては単なる入力を指示するものであり、所詮コンピュータを動作した後に、表示装置を見ながら入力・選択を行うのみであり、遠隔操作はできなかった。

【0005】また、後者は、遠隔操作可能で、例えばスリープ状態のコンピュータをリモートコントロール装置のONスイッチで電源ONすることもでき、また、その後、リモートコントロール装置のポインティングデバイスなどを利用して、入力・選択をすることも可能であった。しかしながら、赤外線で遠隔操作するため、コンピュータの電源ONを行う前であっても、コンピュータを

オフ状態ではなく、スリープ状態にしておく必要が有るといった問題点があった。また、コンピュータの電源ON後も、コンピュータが備える表示装置を見ながら入力・選択する操作を行う必要が有り、コンピュータの表示装置を必ず動作させ、且つ、表示内容が見える位置で操作する必要があるといった問題があった。

【0006】本発明は、上記問題点に鑑みてなされたものであり、コンピュータの表示を見ることなく、コンピュータの操作が可能なりモートコントロール装置を提供することを目的とする。

【0007】

【課題を解決するための手段】上記の課題を解決するために本発明のリモートコントロール装置は、携帯型コンピュータと接続されるリモートコントロール装置であって、携帯型コンピュータの電源のオン／オフを指示する指示手段と、この電源のオン／オフの指示を携帯型コンピュータへ通知する通知手段と、操作スイッチと、前記操作スイッチの状態を読取るマイクロコンピュータと、マイクロコンピュータで読取られた操作スイッチの状態を示す情報を携帯型コンピュータへ送信する送信手段とを備えた。

【0008】これにより、携帯型コンピュータの電源をオンにし、その後携帯型コンピュータの操作をリモートコントロール装置から行うことができるようになった。また、更に着脱可能なヘッドホンを接続する音声出力端子を有し、この音声出力端子にヘッドホンが接続されていないことを前記マイクロコンピュータが検出し、この情報を前記送信手段で送信するようにした。

【0009】これにより、リモートコントロール側での音声出力の実施／未実施の状態を携帯型コンピュータ本体側に伝えることができるから、携帯型コンピュータはこの状態に応じて所定の対応を行うことができるようになった。

【0010】また、更に携帯型コンピュータとの接続に双方向シリアル信号線を用いたから、携帯型コンピュータからの情報を受けることもできるようになった。また、更に、表示手段を有するようにしたから、表示内容に基づいて操作スイッチを操作することも可能になった。

【0011】

【発明の実施の形態】以下、図面を参照して本発明の実施の形態を説明する。図1、図2は、本発明の第1実施形態に係るコンピュータシステムの外観斜視図であり、図1は表示部3を開いた状態であり、図2は表示部3を閉じた状態である。

【0012】携帯型コンピュータ（以下、PCと称す）1は、一般にノートブック型PC等と呼ばれているものであり、機器本体2に対して表示部3が開閉するように構成されている。

【0013】カメラ装置4は、機器本体2と、着脱自在

に構成されており、カメラ装置4を使用する際には、PC1にカメラ装置4を直接接続する構成、または、延長アダプタ(後述)を介し、カメラ装置4を間接接続する構成の何れかで使用可能である。なお、図1及び図2は、PC1にカメラ装置を直接接続した構成を示しており、同図の通り、直接接続の際のカメラ装置4は、機器本体2上の表示部3のヒンジ部6、7の間に配置されており、カメラ装置4がPC1に直接接続されたまま、表示部3の開閉が可能な構成としている。なお、機器本体2には、カメラ装置4からの映像を取込むため等に使用されるシャッタースイッチ8を有している。なお、カメラ装置4に関する構成、動作などの詳細に関しては、後述する。

【0014】機器本体2の側面には、後述するリモコンを接続するためのリモコンコネクタ5を有している。図3は、PC1のシステムブロック図を示している。

【0015】HOST-PCIブリッジコントローラ20には、ローカルバス18を介して、1次キャッシュメモリ12を内蔵するCPU11、2次キャッシュメモリ13、1次キャッシュメモリ12及び2次キャッシュメモリ13にデータアクセスのターゲットとなるデータが存在するか否かを判断するための情報が記憶されているTAG RAM14、及びメモリスロット17を介して本PC1の主メモリを構成するDRAM15と拡張RAM16とが夫々接続されている。

【0016】また、HOST-PCIブリッジコントローラ20は、PCIバス21と接続され、ローカルバス18上の各デバイスとPCIバス21上の各デバイスとの間の通信制御を行う。PCIバス21には、表示部3に配置される液晶表示装置41や外部のCRT装置等を表示制御する表示コントローラ22、カメラ装置4から入力されるデータの取り込み等を制御するビデオキャプチャコントローラ23、他のコンピュータなどとLAN、電話などの回線を使用して通信制御を行うためのモデムコントローラ24、HDD44を制御するHDDコントローラ25、他のコンピュータなどと赤外線ポート45によって高速赤外線通信制御する高速IRコントローラ26、着脱可能なPCカード46を制御するPCカードコントローラ27、昨今急速に広がりつつあるミニサイズの不揮発性メモ리카ード(Ex. Smart Media)47を制御するスマートメディアコントローラ28等が接続されている。

【0017】また、PCIバス21には、標準化されており、外部の各種装置等シリアル接続可能なUSB(ユニバーサル・シリアル・バス)によって、データ送受信するための制御を司るUSBコントローラ29が接続される。USBコントローラ29は、外部との入出力ポートとして2ポート持っており、その1ポートは通常のUSBコネクタ48と接続して利用しているが、他の1ポートは他の信号線等(後述)と併せてリモコンコネクタ

5と接続して利用している。

【0018】PCI-ISAブリッジコントローラ30は、PCIバス21とISAバス31とを接続するための制御回路である。ISAバスには、RTC(リアルタイムクロック)回路32、BIOSを記憶するBIOS-ROM33、キーボード37の制御、システムへの電源供給制御、及びバッテリー36の充放電制御等を行う電源マイコン35と通信を行う等の機能を有する拡張コントローラ34、音声データの音声への変換、音声の音声データへの変換等を行うサウンドコントローラ38が接続されている。拡張コントローラ34は、PC1の電源スイッチ52が押されたことを受けて電源マイコン35へその旨通知する機能を有する他に、リモコンコネクタ5からの電源ボタン(後述)が押されたことも受ける構成となっている。また、サウンドコントローラ38の出力は、スピーカ50、リモコンコネクタ5、ヘッドホンジャック49へ選択的に供給される。この選択については、後述する。51はマイクロフォンである。

【0019】なお、本実施の形態においては、図上PCIバス21を中心として点線で囲まれた領域で、システムLSIを構築している。次に図4を用い、リモコンコネクタ5に関するPC1側の詳細構成について説明する。

【0020】電源供給回路61は、USBの電源供給ラインへ電源を供給する回路であり、USBコントローラ29の2本の信号線62と併せて、一方は、標準のUSBコネクタ48に接続され、他方はリモコンコネクタ5に接続される。また、リモコンコネクタ5から拡張コントローラ34へ電源オンを通知するための1本の信号線63が接続されている。リモコンコネクタ5は、更にサウンドコントローラ38からの音声信号線64と接続されている。この音声信号線64は、通常のオーディオ機器の右、左音声出力に相当する。

【0021】このようにリモコンコネクタ5は、標準のUSB線と電源オンを示す信号と通常の音声出力とを纏めた構成としている。なお、USBコネクタ48、リモコンコネクタ5は、PC1内のグラウンドと接地する信号線を有している。

【0022】リモコンコネクタ5の断面、側面を図5にて示し、説明する。通常のUSB端子は、電力端子、接地端子、通信信号端子2個の計4個の端子によって、外部のUSBデバイスと接続される。また、通常のオーディオ端子は、左音声出力用、右音声出力用、接地用の計3個の接続端子によって接続される。そして、従来のパーソナルコンピュータは、USB端子とオーディオ端子は夫々独立してコネクタを有している。

【0023】これに対し、本実施の形態のリモコンコネクタ5は、これらUSB端子とオーディオ端子と、更に電源信号端子とを同一のコネクタ上に形成している。基板530の一表面には、USB用の電力端子511、U

SB用の通信信号端子512、513、オーディオ用の接地端子521が配置されている。また、基板530の裏面には、接地端子521に対応する位置にUSB用の接地端子514が、通信信号端子512、513に対応する位置にオーディオ用の左音声出力端子522、同右音声出力端子523が、及び電力端子511に対応する位置に電源信号端子501が夫々配置されている。つまり、給電用の端子511、514、521をコネクタの外側に、通信、データ（音声）送信端子512、513、522、523を内側に配置したように構成を取っている。更に図示したように、給電用の端子である電力端子511、接地端子521、接地端子514は他の端子よりも長いパターンで構成している。

【0024】次に、サウンドコントローラ38の音声信号線64は、上記したリモコンコネクタ5との接続のほかに、ヘッドホンジャック49とスピーカ50とに接続されている。ヘッドホンジャック49には、ヘッドホンの接続有無を検出する信号線65が有る。通常のオーディオ機器では、ヘッドホンが接続されている場合にはスピーカは音声出力しないように、上記のヘッドホンの接続有無を検出する信号線65でスピーカ50への音声信号線をオン／オフスイッチする機能を有している。

【0025】本実施の形態のPC1では、ヘッドホンジャック49の接続有無の他に、リモコンコネクタ5を介し接続されるリモコン装置に設けられる着脱可能なヘッドホンジャックでの接続有無をも検出し、スピーカ50への音声信号線64をオン／オフすることが求められている。これを実現するために、PC1は、リモコン装置側からUSBを介して受取るヘッドホンジャックの接続情報を書込むレジスタ66を有している。信号線65またはレジスタ66の何れからか、H出力を受けると、H出力するOR回路67を有し、このOR回路67の出力により、スピーカ50への音声信号線をオン／オフスイッチする構成を取っている。これにより、ヘッドホンジャック49の接続有無の他に、リモコンコネクタ5を介し接続されるリモコン装置に設けられる着脱可能なヘッドホンジャックでの接続有無をも検出し、スピーカ50への音声信号線をオン／オフすることができるようになる。なお、このレジスタ66への書込み動作に関しては、後述する。

【0026】次に、本実施の形態のリモコン装置を、その外観を図6で、そのブロック構成を図7を用いて示し、説明する。リモコン装置70は、10×3文字を表示可能なLCD71、3つの操作スイッチ72、73、74、スナップスイッチ75、電源スイッチ76、ホールドスイッチ77及びヘッドホンジャック78を備える。また、リモコン装置70はケーブル79を備え、ケーブル79の先端には、PC1のリモコンコネクタ5と着脱可能なコネクタ（図示しない）を備えている。またLCD71の背面にはLCD用のバックライト80を備

えており、何れかのスイッチ操作後、数秒間だけ点灯するように構成されている。

【0027】リモコン装置70は、マイクロコンピュータ（以下、マイコンと称す）81、及びPC1のUSBコントローラ29と通信を行うUSBコントローラ82を有している。マイコン81は、本リモコン装置70の全体の制御を司るものであり、主に、PC1から受けたデータに基づきLCD71へ表示する機能、操作スイッチ72、73、74、スナップスイッチ75の状態を検出してコマンドを生成し、USBコントローラ82、ケーブル79を介し、PC1へ通知する機能を有している。なお、操作スイッチ72、73、74は、「押す／左／右」の3つの状態を持つスイッチであり、スナップスイッチ75は、通常のボタンスイッチである。

【0028】また、ホールドスイッチ77は、他のスイッチを無効化するスイッチであり、このスイッチがオンされていると、マイコン81が電源スイッチ76を除く各スイッチの状態変化を無視することにより実現している。また、ここでは図示しないが、例えば、電源スイッチ76の信号線にスイッチ回路を設け、ホールドスイッチ77のオンでスイッチ回路が切れるように構成しておけば、電源スイッチ76も無効化できる。

【0029】ケーブル79を介し入力される音声信号線83は、リモコン装置70内を伝って、ヘッドホンジャック78に接続される。また、電源スイッチ76は、オンされることにより、電源オン／オフを示す信号をマイコン81とは独立してケーブル79を介し、PC1へ供給する。

【0030】ヘッドホンジャック78には、前記したPC1側に設けられているヘッドホンの接続の有無を表す信号線と同等の信号線84が接続されており、この信号線84により、ヘッドホンジャック78の接続の有無をマイコン81によって検出し、マイコン81は、その検出結果に基づき所定のコマンドを生成し、USBコントローラ82によって、ケーブル79を介し、PC1へその旨を通知する。PC1は、USBコントローラ29で受取った通知をCPU11で解釈し、前記したレジスタ66にIO命令で書込む。これにより、リモコン装置70のヘッドホンジャック78のヘッドホンの接続有無を判別できる。

【0031】以上のように構成したリモコン装置70を接続したPC1は、PC1とリモコン装置70をシリアル信号線で、且つ、双方向に情報伝達が可能であるUSBを利用して接続するから、また、リモコン装置70にPC1をオン／オフする電源スイッチ76を設けたから、例えば次のような利用の仕方が可能となる。

【0032】今、PC1は電源オフ状態で表示部3の蓋を閉じており、且つ、リモコン装置70が接続されている状態とする。この状態でリモコン装置70の電源スイッチ76を押すと、PC1の拡張コントローラ34へ電

源が押された旨、通知される。

【0033】拡張コントローラ34は、これを電源マイコン35へ通知し、これによりPC1は、動作を開始して、初期化、OSのロードなどを実行する。また、このとき、リモコン上位プログラム、リモコンドライバーソフトもロードされ、リモコン装置70から送信されるコマンドを解釈するためのテーブルを用意される。このテーブルは、リモコンの各スイッチのアクションに従うマイコン81からのコマンドと、上位プログラムへの命令とを対応づけたものである。

【0034】また、リモコンドライバーソフトは、リモコン装置70のLCD71へ表示するためのデータを上位プログラムから受取って、USBコントローラ29へ供給する。USBコントローラ29は、リモコンコネクタ5側を使用して、リモコン装置70へデータ送信する。リモコン装置70は、送信されたデータをLCD71へ表示し、ユーザからの操作を待つ。ユーザから、何らかのスイッチ操作を行うとマイコン81は、その操作スイッチを解釈し、コマンドを生成し、USBコントローラ82を使用してPC1へ送信する。送信されたコマンドを前記のテーブルを使用し、上位プログラムへの命令に変換し、通知する。

【0035】以上の例では、PC1の表示部3は閉じている（非表示である）が、PC1としては、動作が実行されている。このようにして動作する本実施の形態のリモコン装置70を有するPC1においては、例えばPC1にある記憶装置（HDD44やスマートメディア47等）の、あるオーディオファイルを、リモコン装置70の操作ボタンを使用して指示して、これをリモコン装置70のヘッドホンジャック78を介し、ヘッドホンで聞くなどといった使用方法に好適である。

【0036】以上のように構成したリモコン装置70を接続したPC1は、PC1とリモコン装置70をシリアル信号線で、且つ、双方向に情報伝達が可能なるUSBを利用して接続するから、リモコン装置70からPC1へ指示もでき、またPC1から表示データの供給を受けてこれを表示することも可能となり、また表示したデータに基づき処理を選択するなどといったインタラクティブに動作の実行を行えるようになった。

【0037】次に、PC1に接続されるカメラ装置4に関して、その正面、及び側面をそれぞれ図8で示す。101はレンズ、102はピントを手動で調整するつまみ、103はPC1から取外した際においてのみ使用可能なように配置されたシャッタースイッチである。このように、カメラ装置4側にシャッタースイッチ103を設けたから、後述する延長ケーブルを使った際、手でシャッター操作できる。さらに、シャッタースイッチ103は、カメラ装置4をPC1と直接接続している際には操作できない位置に配置しており、誤操作を防止することができる。

【0038】104はPCと直接、または延長アダプタを介し接続されるコネクタである。また、回転部105は円柱の軸に対しほぼ180度回転可能な構成となっている。PC1にカメラ装置4を直接接続したときに、機器本体2の上面とレンズ101の中心（映像の中心）方向とがほぼ30度からほぼ210度迄、表示部3と同一方向に回転可能になっている。

【0039】図9は、カメラ装置4とPC1とを直接接続した際の機能ブロック図、図10はカメラ装置4とPC1とを延長アダプタを介し接続したときの図である。PC1はコネクタ121を有する。一方、カメラ装置4は、このコネクタ121に電気的に接続可能なコネクタ104を有する。また、延長アダプタはコネクタ121と接続されるコネクタ123及びコネクタ104と接続されるコネクタ124とを有し、後述する方向スイッチ113を除く信号線が電気的に接続される構成を有している。

【0040】CMOSセンサー111は、レンズ101を介して入力された画像データを画素情報として取込むものである。これをデジタル信号プロセッサ112で処理した後、PC1へ供給する。

【0041】ところで、カメラ装置4をPC1に直接接続されているとき、回転部105が上方向を超えた場合に取込まれる画像データは上下が逆転する。このために方向スイッチ113を設けている。方向スイッチ113は、回転部105が所定の角度を超えたときにスイッチされるものであり、例えば、本実施の形態では、60度（機器本体2に対しては90度＝真上方向）あたりでスイッチされるのが望ましい。この方向スイッチ113の状態は、直接接続の場合にはビデオキャプチャコントローラ23へ供給される。しかし、延長アダプタでの間接接続の場合には、結線しておらず方向スイッチ113の状態はビデオキャプチャコントローラ23へは供給されない。これは、延長アダプタを使用した場合には、通常ユーザがカメラ装置4を手で持ってフレキシビリティに操作されるため、上下の方向が変わると、かえって不備になるという欠点を改良したものである。

【0042】カメラ装置4のシャッタースイッチ103及びPC1のシャッタースイッチ8の何れか一方が押されたときには、ビデオキャプチャコントローラ23へOR回路118を通じ、押された旨の通知がされる。

【0043】また、カメラ装置4内にはグラウンド114を備え、PC1内のプルアップ抵抗115から電圧が印可されるか否かをビデオキャプチャコントローラ23で検出し、接続の有無の確認を行う。グラウンド114をカメラ装置4内に配置したから、直接接続、間接接続の何れであっても、カメラ装置が接続されているかいないかを正しく判別することができる。この接続の有無を検出し、ビデオキャプチャコントローラ23は、スイッチ116をオン／オフし、カメラ装置4への電源供給を行

う。カメラ装置4がPC1に接続されている際には、映像データはビデオキャプチャコントローラ23へは常に映像が供給されている。これをPC1上に取込むか否かは、PC1本体のアプリケーションプログラムからのビデオキャプチャコントローラ23への設定に依存するものである。例えば、シャッタースイッチ103、8が押されるたびにそのときの映像をPC1へ取り込むか、シャッターが押された以降は次にシャッターが押されるまで取り込み続けるかは、アプリケーションプログラムによる設定で定義されるものである。

【0044】 以上のように、PC1が備えるコネクタ121及びカメラ装置4が備えるコネクタ104とに接続可能な延長アダプタを有したから、カメラ装置4は、PCと直接接続して使用することも可能であり、かつ延長アダプタを介して接続して、ハンディカメラとしても使用することが可能となった。

【0045】

【発明の効果】 以上説明したように、本発明により、携帯型コンピュータの電源をオンにし、その後携帯型コンピュータの操作をリモートコントロール装置から行うことが可能になる。また、リモートコントロール側での音声出力の実施／未実施の状態を携帯型コンピュータ本体側に伝えることができるから、携帯型コンピュータはこの状態に応じて所定の対応を行うことが可能になる。また、更に携帯型コンピュータからの情報を受けることも可能になり、表示内容に基づいて操作スイッチを操作することも可能になる。

【図面の簡単な説明】

【図1】 本発明の第1実施形態に係るコンピュータシステムの外観斜視図。

【図2】 本発明の第1実施形態に係るコンピュータシステムの外観斜視図。

【図3】 本発明の第1実施形態に係るコンピュータシステムのシステムブロック図。

【図4】 リモコンコネクタ5に関するPC1の部分ブロック図。

【図5】 リモコンコネクタ5の形状を示す図。

【図6】 リモコン装置70の外観図。

【図7】 リモコン装置70のブロック図。

【図8】 カメラ装置4の正面、側面図。

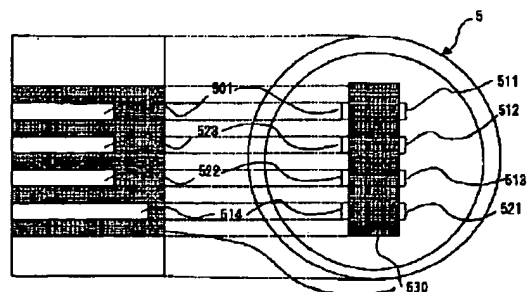
【図9】 カメラ装置4とPC1とを直接接続した際の機能ブロック図。

【図10】 カメラ装置4とPC1とを延長アダプタを介し接続したときの機能ブロック図。

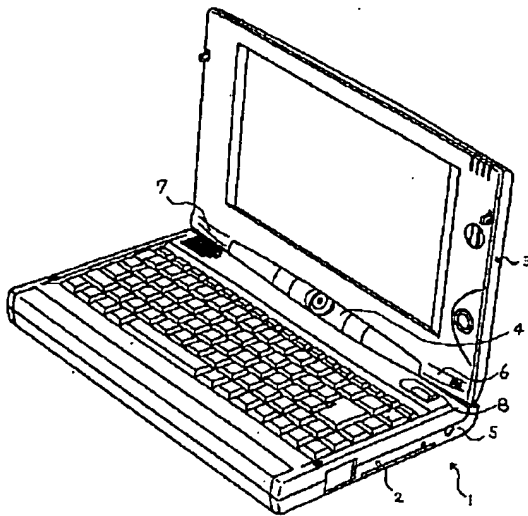
【符号の説明】

- | | | | | | | |
|-----------------|--------------------------|-------|----------------|-----------|-----|----------|
| 1 | 携帯型コンピュータ | 2 | 機器本体 | 3 | 表示部 | |
| 10 | 4 | カメラ装置 | 8 | シャッタースイッチ | 5 | リモコンコネクタ |
| 11 | CPU | 11 | 1次キャッシュメモリ | | | |
| 13 | 2次キャッシュメモリ | 14 | TAG RAM | | | |
| 15 | DRAM | 15 | 拡張RAM | | | |
| 20 | HOST-PCIブリッジコントローラ | 21 | PCIバス | | | |
| 22 | 表示コントローラ | 23 | ビデオキャプチャコントローラ | | | |
| 24 | モデムコントローラ | 25 | HDDコントローラ | | | |
| 26 | 高速IRコントローラ | 27 | PCカードコントローラ | | | |
| 28 | スマートメディアコントローラ | 29 | USBコントローラ | | | |
| 30 | PCI-ISAブリッジコントローラ | 33 | BIOS-ROM | | | |
| 34 | 拡張コントローラ | 35 | 電源マイコン | | | |
| 38 | サウンドコントローラ | 48 | USBコネクタ | | | |
| 70 | リモコン装置 | 71 | LCD | 72、73、 | | |
| 74 | 操作スイッチ | | | | | |
| 76 | 電源スイッチ | 78 | ヘッドホンジャック | 8 | | |
| 1 | マイコン | | | | | |
| 101 | レンズ | 103 | シャッタースイッチ | | | |
| 104、121、123、124 | コネクタ | 111 | CMOS | | | |
| 112 | Digital Signal Processor | | | | | |
| 113 | 方向スイッチ | | | | | |

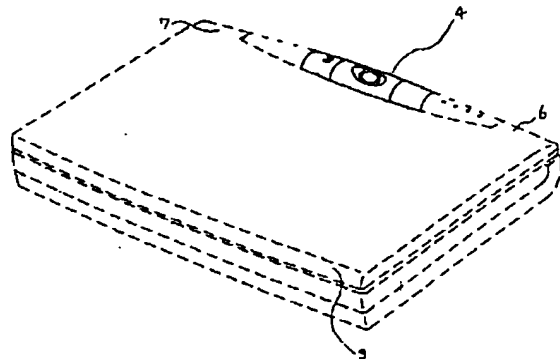
【図5】



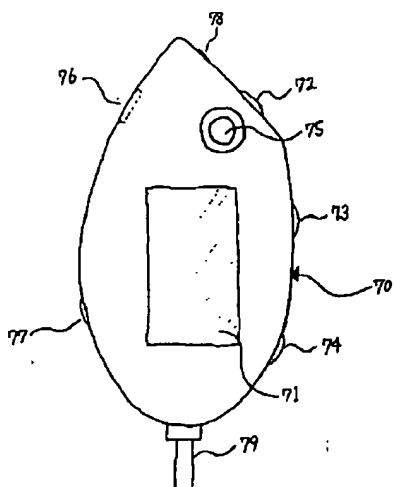
【図1】



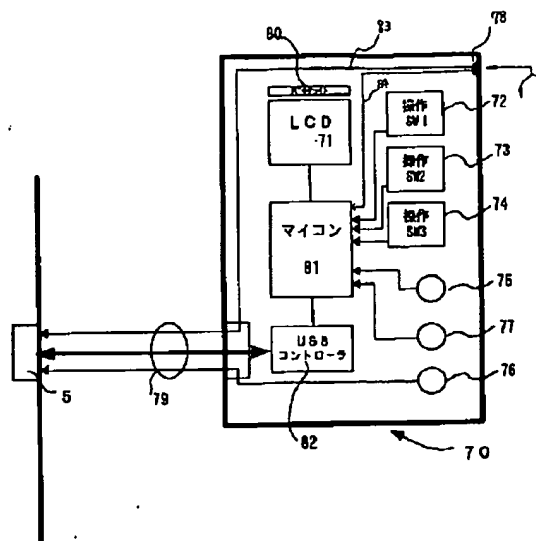
【図2】



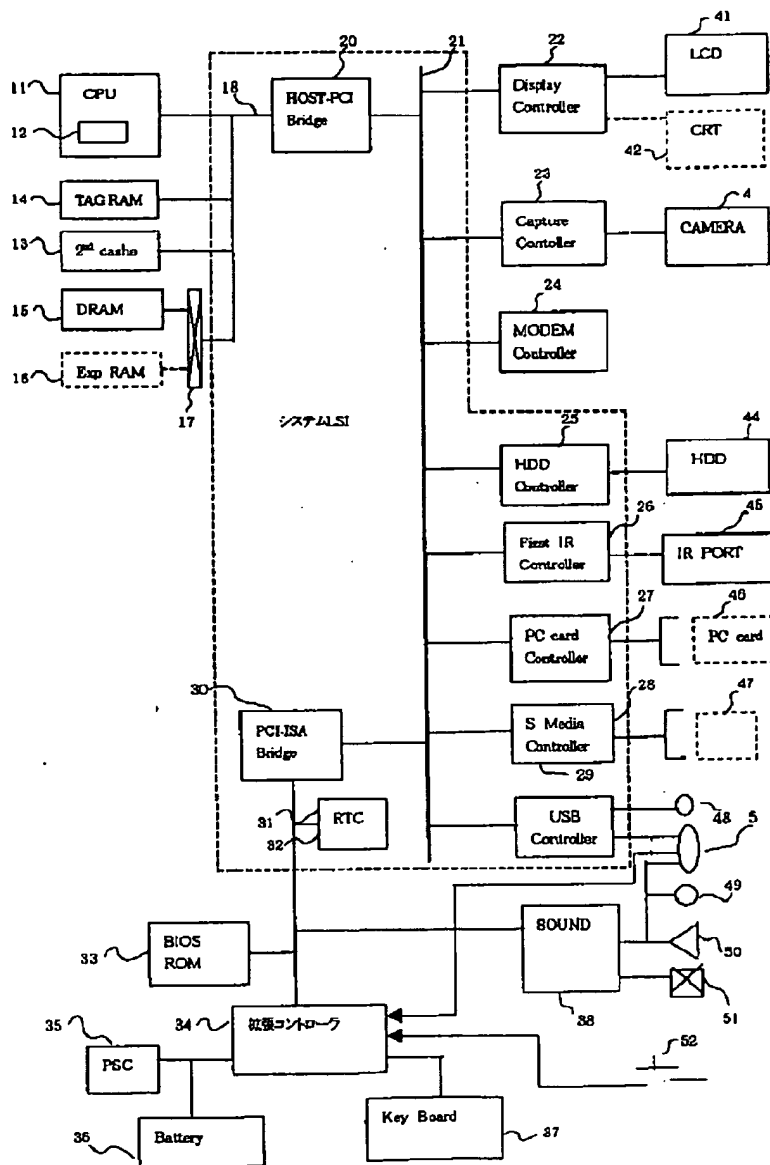
【図6】



【図7】

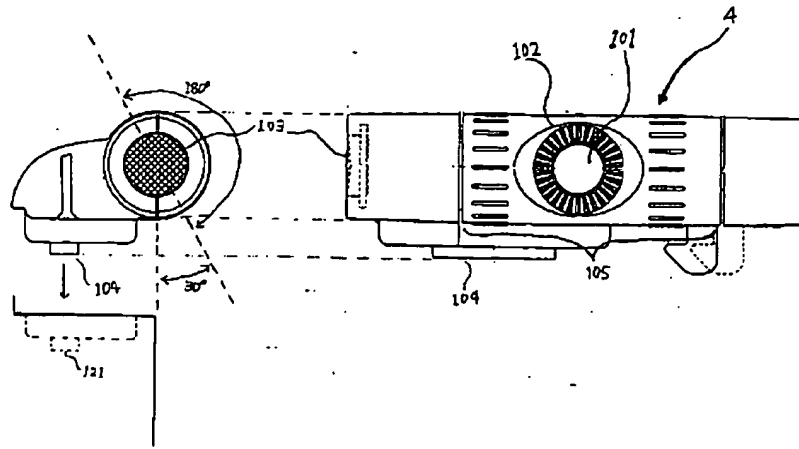


【図3】

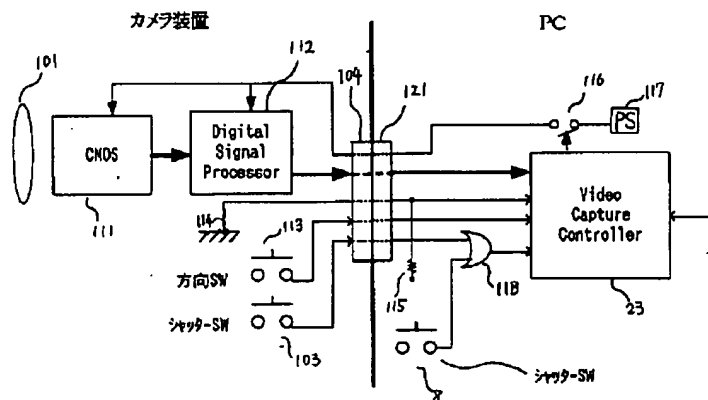


The diagram illustrates the system architecture. On the left, the **カメラ装置** (Camera Device) includes a lens (101), a CMOS sensor (111), and a Digital Signal Processor (112). The DSP (112) is connected to a bus (114) and a ground (113). Below the bus, there are two switches: **方向SW** (Direction Switch) (102) and **シャッターSW** (Shutter Switch) (103). In the center is the **延長アダプタ** (Extension Adapter), which contains two vertical bus segments (124 and 123) and a ground connection (125). On the right, the **PC** section includes a **Video Capture Controller** (123) connected to the adapter's bus (123). It also features a **PS 3.3V** power supply (116) and a **シャッターSW** (Shutter Switch) (117) connected to the controller (123) via a switch (118).

【図8】



【図9】



フロントページの続き

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